What is claimed is:

1. A sensor chip, comprising:

i) a layer-shaped base body, which has a plurality of fine holes formed in one surface, and

ii) fine metal particles, each of which is loaded in one of the fine holes of the base body,

wherein at least a part of each of the fine metal particles is exposed to a side of the layer-shaped base body, which side is more outward than the one surface of the layer-shaped base body.

2. A sensor chip as defined in Claim 1 wherein the layer-shaped base body is constituted of anodic oxidation alumina.

3. A sensor chip as defined in Claim 1 wherein the fine holes of the layer-shaped base body are formed with etching processing, in which anodic oxidation alumina having a plurality of fine holes is utilized as a mask.

4. A sensor chip as defined in Claim 1 wherein at least a one-half part of each of the fine metal particles is exposed to the side of the layer-shaped base body, which side is more outward than the one surface of the layer-shaped base body.

5. A sensor chip as defined in Claim 1 wherein a diameter of each of the fine metal particles is at most 200nm.

6. A sensor using a sensor chip as defined in Claim 1, the sensor comprising:

i) means for irradiating measuring light to an area of the fine metal particles of the sensor chip, and

ii) photo detecting means for detecting intensity of the measuring light, which has passed through the area of the fine metal particles, or has been reflected from the area of the fine metal particles.

7. A sensor as defined in Claim 6 wherein the means for irradiating the measuring light is means for producing white light as the measuring light, and

the photo detecting means spectrophotometrically detects the intensity of the measuring light, which has passed through the area of the fine metal particles, or has been reflected from the area of the fine metal particles.

8. A sensor chip for use in a sensor wherein a state of localized plasmon resonance at a surface of each of fine metal particles is detected by the utilization of light and wherein characteristics of a sample in the vicinity of each of the fine metal particles are thereby analyzed, the sensor chip comprising:

i) a support member having a plurality of independent fine holes, which extend in a direction approximately normal to a surface of the support member, and

ii) independent fine metal particles, each of which is supported within one of the fine holes of the support member,

wherein the support member is constituted of a transparent dielectric material having uniform density.

9. A sensor chip as defined in Claim 8 wherein the support member is constituted of a polystyrene.

10. A process for producing a sensor chip, comprising the steps of:

i) forming an anodic oxidation alumina film on a surface of a base plate, which is constituted of a transparent dielectric material, the anodic oxidation alumina film having a plurality of first fine holes, which extend in a direction approximately normal to the surface of the base plate,

ii) subjecting the base plate to etching processing, in which the anodic oxidation alumina film having been formed on the surface of the base plate is utilized as a mask, a plurality of second fine holes, each of which corresponds to one of the first fine holes, being thereby formed in the surface of the base plate, and

iii) performing processing wherein, after the anodic oxidation alumina film has been removed from the surface of the base plate, a metal depositing operation is performed on the base plate having the surface, in which the second fine holes have been formed, the metal depositing operation being

performed from the side of the surface of the base plate, and a metal deposit layer having been formed on the surface of the base plate is then removed, whereby each of independent fine metal particles is supported within one of the second fine holes of the base plate.

11. A sensor, comprising:

i) a sensor chip as defined in Claim 8,

ii) a light source for producing light, such that the light impinges upon an area of the fine metal particles of the sensor chip, and

iii) photo detecting means for detecting intensity of the light, which has passed through the area of the fine metal particles of the sensor chip, or has been reflected from the area of the fine metal particles of the sensor chip,

wherein characteristics of a sample in the vicinity of each of the fine metal particles, each of which is supported within one of the fine holes of the support member, are analyzed in accordance with results of measurement obtained from the photo detecting means.

12. A sensor as defined in Claim 11 wherein the photo detecting means is a spectrophotometer.

13. A fine structure body, comprising:

i) a layer-shaped base body, which has a plurality of fine holes formed in one surface,

ii) fine metal particles, each of which is loaded in one of the fine holes of the base body, and

iii) a thin metal film formed on areas of the one surface of the layer-shaped base body, which areas are located around each of the fine holes of the layer-shaped base body, such that the thin metal film is located at a spacing, which is approximately equal to at most a diameter of each of the fine metal particles, from each of the fine metal particles.

14. A fine structure body as defined in Claim 13 wherein the layer-shaped base body is constituted of anodic oxidation alumina.

15. A fine structure body as defined in Claim 13 wherein the fine holes of the layer-shaped base body are formed with etching processing, in which anodic oxidation alumina having a plurality of fine holes is utilized as a mask.

16. A fine structure body as defined in Claim 13 wherein the layer-shaped base body is transparent with respect to light irradiated to the layer-shaped base body.

17. A fine structure body as defined in Claim 13 wherein the layer-shaped base body is divided into a plurality of layer-shaped base sub-bodies, which are located at a spacing from one another and are supported together with one another.

18. A process for producing a fine structure body as defined in Claim 13, comprising the steps of:

i) obtaining the layer-shaped base body, which has the plurality of the fine holes formed in the one surface, and

ii) performing vacuum evaporation processing from the side of the one surface of the layer-shaped base body, whereby each of the fine metal particles is loaded in one of the fine holes of the base body, and the thin metal film is formed on the areas of the one surface of the layer-shaped base body, which areas are located around each of the fine holes of the layer-shaped base body.

19. A process for producing a fine structure body as defined in Claim 13, comprising the steps of:

i) obtaining the layer-shaped base body, which has the plurality of the fine holes formed in the one surface,

ii) performing plating processing on the layer-shaped base body, each of the fine metal particles being thereby loaded in one of the fine holes of the base body, and

iii) performing vacuum evaporation processing from the side of the one surface of the layer-shaped base body, whereby the thin metal film is formed on the areas of the one surface of the layer-shaped base body, which areas are located around each of the fine holes of the layer-shaped base body.

20. A sensor using a fine structure body as defined in Claim 13, the sensor comprising:

i) means for irradiating measuring light to an area

of the fine metal particles and the thin metal film of the fine structure body, and

ii) photo detecting means for detecting intensity of the measuring light, which has passed through the area of the fine metal particles and the thin metal film, or has been reflected from the area of the fine metal particles and the thin metal film.

21. A sensor as defined in Claim 20 wherein the photo detecting means spectrophotometrically detects the intensity of the measuring light, which has passed through the area of the fine metal particles and the thin metal film, or has been reflected from the area of the fine metal particles and the thin metal film.